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04-37

2737 Whitewood Road
Bethlehem, PA 18017
February 16, 2004

Michael Powell, Chairman
Federal Communication Commission
445 12th Street SW
Washington, DC 20554

Broadband Over Power Lines (BPL) Produces Harmful Interference in Hanover Township, Northampton County, Pennsylvania, Test Location

Federal Communications Communication Notice of Proposed Rulemaking (FCC 04-29) ["Proposed Rules for Broadband over Power Lines to Promote..."]

Dear Chairman Powell

This letter is to ask for your support in terminating the subject FCC program which, if adopted, will produce widespread pollution of one of the world's unique and valuable natural resources – the part of the radio frequency spectrum known as "high-frequency", or "HF". Efforts are underway as stated in the subject proposal, FCC 04-29, to "foster.. deployment" of a technology called Broadband Over Power Lines (BPL) with the goal of using the power grid to provide affordable broadband data access to "all Americans"

Unfortunately, when things seem too good to be true, they are often just that. The use of BPL will emit radio signals that will interfere with the use of the "HF" radio frequency spectrum; the part of the spectrum that is fundamental in enabling world-wide wireless communication Secure access to this resource is essential for radio communications by short-wave, amateur, government, homeland security, observatories, and numerous other radio services

The fact that BPL produces interference is not in doubt. The question is whether BPL causes interference that is "harmful" by obstructing the use of the radio spectrum by other radio services Based on my personal experience as a licensed amateur radio operator with considerable technical experience, there is no question that the answer is YES. Enclosed is a letter sent to PPL Telcom, which is presently conducting BPL tests near my home under the terms of an "experimental" license As described in the letter, the deployed BPL system has completely obstructed wide portions of the radio spectrum assigned to the amateur and to other radio services. Communication is not possible in those parts of the spectrum This observed "harmful interference" is confirms fears expressed by the Federal Energy Management Agency (Homeland Security), the American Radio Relay League, and countless emergency, government and technical organizations. Many trials of BPL technology have also been conducted outside the United States, most of which have now been terminated due to unacceptable interference to other radio services. Why are we going down the same path?

Please take steps to terminate this action now, before widespread deployment of BPL causes predictable harm to the unique natural resource that is the HF radio spectrum

Very truly yours,

Vincent V. Horvath

Vincent V Horvath, PhD
Electrical Engineering

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2737 Whitewood Road
Bethlehem, PA 18017
February 8, 2004

David H Kelley, President
PPL Telcom
Two North Ninth Street
Allentown, PA 18101-1179

Broadband Over Power Lines (BPL) Produces Harmful Interference in Hanover Township, Northampton County, Pennsylvania

Dear Mr Kelley

I have a station and operator's license issued by the FCC which grants certain rights and responsibilities under Title 47 of the Code of Federal Regulations (CFR), Part 97. More specifically, I hold "Amateur Extra Class" license N3VV and routinely operate from the station located at my home at 2738 Whitewood Road, Bethlehem, PA 18017. I have been a licensed amateur radio operator since 1956, and also hold a PhD in Electrical Engineering.

Since the beginning of this year, I have been impacted by severe and harmful interference created by the BPL system installed by PPL Telcom to the extent that it makes the 28-30 megahertz (MHz) frequency band completely unusable. This is one of the bands in which the amateur radio communication service is the primary permitted use The nature of the BPL interference that I am experiencing is a sequence of carriers approximately 1 1 kilohertz in separation across the entire 28-30 MHz band, and extending well below 27 Mhz BPL signals are also detected on the 18MHz and 24MHz amateur bands at a lower strength This means that there are literally thousands of signals across the bands. Furthermore, the signal strength of the interference measured on my receiver, located at its normal station position inside my home, is S6 to S9 The S9 number corresponds to 50 microvolts at the antenna input to the receiver and, in relation to signals normally received, this interference is very strong indeed To put it another way, the interference from the BPL is of an amplitude and bandwidth that drowns out nearly all other signals, rendering the 28-30MHz band useless for normal communications. This is clearly "harmful interference" as defined in the Code of Federal Regulation.

It took some detective work to confirm the exact source of the interference, but eventually it was traced to a BPL transceiver manufactured by Amperion that is mounted on a PPL electric utility power pole about 750 feet from my station location The system appears to be the type advertised on Ampenon's website as the Griffin 1000. The PPL installation also includes BPL signal coupling wires between the base unit on the pole and the electric power lines in the shape of large loops that, in the 28-30MHZ frequency range, could easily act as additional radiating antennas

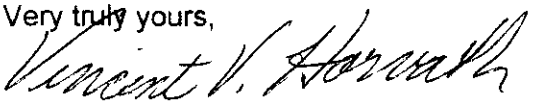
Attached in Appendix A is a summary of relevant parts of 47CFR, Part 15 which covers the FCC rules under which PPL Telcom is permitted to carry out its experiments with BPL As you well know, FCC rules require that you cease operations of the BPL system until such time as you can show that all harmful interference has been eliminated I am sure that you will "do the right thing" regarding the harmful interference at my home and shut down the system. Based on my experience, I would certainly recommended that PPL Telcom take a more realistic approach to addressing the potential for interference to amateurs and other radio services in the PPL area before any BPL system is deployed Complaints and concerns by others are inevitable

PPL has a strong history of being a good corporate "citizen" in the community, and citizens have reciprocated In the case of BPL, however, the intentional pollution by PPL Telcom of the broad radio frequency spectrum, and its negative impact on other radio services, offers a serious threat to PPL's relationship in the community By its very nature and the immutable laws of physics, BPL will interfere not only with amateur radio operators like myself, but also with numerous emergency, private, and government services who depend on having dependable secure access to allocated portions of the radio frequency spectrum Should interference prevent clear communication in an emergency, it could lead to disastrous consequences We may all "wish it were not so" but in its present form and use of the radio spectrum, BPL is a bad idea

The Federal Communications Commission is in the process of receiving and reviewing detailed input from the technical community, other radio services, and government/emergency/homeland security organizations It is possible, and even likely, that good judgement will prevail and BPL deployment will not be generally permitted With this perspective in mind, perhaps one needs to reconsider the wisdom of PPL Telcom proceeding with a program that has a high level of technical, political, community relations, and financial risk

There is, of course, the very real problem of harmful BPL interference now being created by PPL Telcom that needs to be eliminated – permanently

Very truly yours,



Vincent V Horvath

Cc

Michael Powell, Chairman, Federal Communication Commission
K Abernathy, M Copps, K Martin, J Adelstein, Federal Communication Commission
Senator John McCain, Chairman, Committee on Commerce, Science and Transportation
Senator Conrad Burns, Chairman, Subcommittee on Communications
Representative Fred Upton, Chairman, House Subcommittee on Telecomm. and the Internet
Patrick Toomey, United States House of Representatives
Greg Walden, United States House of Representatives
Charles W Dent, Senator, Pennsylvania General Assembly

Thomas Ridge, Secretary, Homeland Security
Barry C West, Chief Information Officer, FEMA of the U S
Daniel G Wolf, Director of Information Assurance, National Security Agency

David Sumner, Executive Director, American Radio Relay League
Edward Hare, Laboratory Supervisor, American Radio Relay League

John J Finnigan, Jr , Chairman, Board of Supervisors - Hanover Township, Northampton County – Pennsylvania
Thomas Jacob, Chairman, Planning Commission - Hanover Township, Northampton County – Pennsylvania

Appendix A – Commented Excerpts from 47CFR, Part 15

Based on information published on the Federal Communications Commission website, PPL Utilities has been issued experimental license WC2XCQ, valid until October 2, 2004, to install and test BPL at locations within a 10km radius of Allentown. The experimental license allows the use of signals in the 1 7 to 30 MHz part of the radio spectrum; essentially the complete high-frequency radio spectrum The license is subject to the terms and conditions of Title 47 of the Code of Federal Regulations, Part 15, Radio Frequency Devices

A few definitions are useful

- BPL systems are unintentional radiators as defined in 47CFR, Part 15 3(z). That is, they are not required to radiate energy in the radio-frequency spectrum, but are intended to transport data via electrical transmission lines – in this case electric power lines. By the nature of their design, electric power lines behave as very poor broadband data transmission lines, and a substantial portion of the signal energy escapes from the power lines as radiated energy in the radio frequency spectrum

- Harmful interference is defined in 47CFR, Part 15.3(m) as "any emission, radiation, or induction that endangers the functioning of a radio navigation service or other safety services or seriously degrades, obstructs or repeatedly interrupts a radiocommunications service operating in accordance with this Chapter "

Your attention is called to 47CFR, Part 15 5 General conditions of operation

(a) Persons operating intentional or unintentional radiators shall not be deemed to have any vested rights or recognizable right to continued use of any given frequency by virtue of prior registration or certification of equipment

(b) Operation of an intentional, unintentional, or incidental radiator is subject to the conditions that no harmful interference is caused and that interference must be accepted that may be caused by the operation of an authorized radio station

(c) The operator of a radio frequency device shall be required to cease operating the device upon notification by a Commission representative that the device is causing harmful interference. Operation of the device shall not resume until the condition causing harmful interference has been corrected

Conclusions

Based on the above definitions, requirements, and the facts as outlined in the cover letter, it is clear that the PPL Telcom's BPL system – an unintentional radiator – is creating harmful interference and obstructing a radio communications service operating in accordance with the authorized terms and conditions of the services' license. Specifically, interference caused by the BPL is obstructing the authorized and legitimate rights granted to amateur radio service license N3VV